A pilot study comparing reduction of anxiety by binaural beat audio and patient-selected music in the pre-operative period

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Pre-operative anxiety is common in adult patients attending for day case surgery. Increasing attention is being paid to a variety of non-pharmacological approaches to reduce anxiety and thus minimise associated adverse sequelae [1]. Our previous work demonstrated the potential for binaural beat audio to reduce preoperative anxiety [2] as measured by the State-Trait Anxiety Inventory. The primary aim of this study was to compare anxiety, as measured by a Visual Analogue Anxiety Scale (VAAS) [3], in participants listening to binaural beat audio and those listening to self-selected music in the pre-operative period. Secondary aims were to ascertain whether the Bispectral Index (BIS) monitor was able to detect any differences within or between the two groups while listening to music, and to compare induction dose requirements between the two groups.

Methods

Following Local Research Ethics Committee and Trust Research and Development approval, 20 consenting adult patients scheduled for day case surgery at Sunderland Royal Hospital were randomised to listen to either 'Holosync' audio (Centerpointe Research Institute, Beaverton, USA; Binaural Group) or music of their choice (Music Group) for 20–60 min in the hour preceding surgery. Visual Analogue Anxiety scores were sought before music, after listening to music and immediately before induction in the theatre environment, while BIS scores were recorded each minute during the music listening period. The dose of propofol required at induction to achieve a BIS score of 50 was also recorded. Data were compared using a one tailed unpaired t-test.

Results

Mean VAAS before listening to music was similar between the groups (Binaural: 49.7 mm and Music: 56.1 mm; $p = 0.21$). Anxiety scores were lowest immediately after listening to music in both groups (14.0 mm and 32.6 mm, respectively; $p = 0.015$). Mean VAAS before induction was 31.8 mm and 45.7 mm, respectively ($p = 0.037$). Bispectral index scores during listening did not account for changes in anxiety observed between the two groups. Induction doses of propofol were similar between groups.

Discussion

Binaural beat audio provides superior anxiolysis to patient-selected music in the pre-operative period as measured by VAAS. Changes in reported anxiety did not correlate with BIS scores nor induction dose requirements.

References

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The XML Training Log (XTraLog): a prototype browser-based instrument for assessment of competency in technical skills

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An integral part of clinical training is the keeping of records that document one's training progress. This is important in the context of regulation-driven decreases in clinical training time and the advent of competency-based assessments. Traditionally, documenting progress consists of simple recordings of the numbers of various procedures performed. This is inadequate, since different people require differing experience to gain the requisite level of expertise. More information, such as success rates and time-related trends in progress, needs to be captured as well. Traditionally too, static charts like Excel are used to display the data. However, static charts can only display a small amount of information before becoming cluttered and confused. This led us to consider the use of interactive graphics, where we can selectively focus on different aspects of each procedure. For the purpose of versatility and industry support, we chose XML (eXtensible Markup Language) as our data storage format and the XML-based SVG (Scaleable Vector Graphics) as our interactive graphing format. Here I describe the skills logging software we developed.

